



The New BAE —Airspace C²

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The mission of the BAE [brigade aviation element] is to provide integration and synchronization of aviation into the BCT's [brigade combat team's] scheme of maneuver.

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The BAE concept evolved as part of Army transformation and was a solution identified by the Aviation Task Force (TF). This TF was convened in 2003 as part of the Chief of Staff, Army's focus groups and composed of aviation subject matter experts (SMEs) across the Army. The TF's mission was to reexamine the Army Aviation structure in terms of modularity and transformation. It reviewed lessons learned from Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF) and countless combat training center (CTC) rotations. What the TF learned was that, across the

board, aviation and ground maneuver continued to lack the synchronization desired by all.

Historically, Army Aviation provided liaison officers (LNOs) for short durations only. These LNOs were outstanding pilots, but they lacked the proper equipment, air-ground integration training, airspace coordination command and control (AC²) training and, often, the right number of personnel to perform the planning.

The BAE was developed to meet the modular demands of the BCT and the combat aviation brigade (CAB). The contemporary operating environment (COE) demands well-aimed fires, synchronized ground maneuver and integrated aviation operations. The BCT and CAB have been redesigned to meet these needs, and the BAE has been established as an organic staff element within the BCT to ensure mission success.

The Army's senior leadership wanted to harness the air-ground integration synergy that existed with Special Op-

erations Forces (SOF) where the air and ground relationship is interwoven tightly, resulting in well-planned and executed operations. Design analysis also looked at other staff organizations with proven track records. The fire support cell (FSC) in the infantry brigade had similar capabilities.

The BAE had to have all the attributes that made these other organizations successful. These attributes are listed in Figure 1.

On the BCT staff is the BAE, FSC and the Air Defense airspace management (ADAM) cell. The BAE, FSC and ADAM cell are integrated closely and, between the three, deconflict and integrate all friendly air-ground fires, maximizing the BCT's combat power.

The BAE provides an embedded 24-hour capability to plan and coordinate aviation operations, unmanned aircraft system (UAS) operations and AC² throughout the BCT's area of responsibility (AOR). It helps set the conditions for the BCT's success through the

The BAE–

- Has a robust, mature, mission-focused staff capable of 24-hour operations.
- Is a large enough organization to simultaneously conduct current operations and prepare future plans.
- Has a permanent presence and home station and conducts reception, staging, onward movement and integration (RSOI); combat operations; stability operations; redeployment; and regeneration.
- Provides embedded branch-specific (SMEs) capable of coordinating and deconflicting airspace laterally, with higher headquarters and joint headquarters.
- Provides Army Battle Command System (ABCS) connectivity and communications to facilitate the common operating picture (COP) and communicate with supporting units.

Figure 1: Attributes of a Brigade Aviation Element (BAE)

combined arms integration of aviation into the commander's scheme of maneuver.

BAE Organization. The BAE consists of a six-man team with a major as the officer-in-charge (OIC). A captain serves as the plans officer and second-in-charge with a chief warrant officer three (CW3) tactical operations officer. A Military Occupational Specialty (MOS) 15PAviation Operations Specialist sergeant first class serves as the operations NCO, an MOS 15Q Air Traffic Control Operator staff sergeant is the assistant operations NCO and an MOS 15P specialist rounds out the team. These Soldiers represent the BCT's Aviation SMEs.

Staff Mission-Essential Task List (METL). The BAE staff METL is shown in Figure 2. To accomplish these tasks, the BAE must initiate planning that will be refined by the CAB or aviation battalion TF. Key to the success of the BAE is its ability to conduct conceptual planning 72 to 96 hours out while the CAB or aviation TF is conducting current operations. It cannot be overstated that what the BAE plans must be supportable by the aviation TF. The BAE accomplishes this by developing as close a relationship with the aviation TF as it has with its organic infantry battalion commanders and staffs.

At the same time, ground units must seek out the BAE and ensure they fully understand the capabilities and limitations of the aircraft and crews supporting the ground commander. The BAE and aviation organizations it supports are a partnership built on collaboration and teamwork.

The BAE must be proficient in planning those missions listed in Figure 3. Based on the wide breadth of knowledge required to plan these operations, the BAE

must have officers, NCOs and Soldiers who are experienced, intelligent, fast-learning professionals who are ready for the challenge.

Training. As the BAE went from concept to reality, the Army Aviation Warfighting Center at Fort Rucker, Alabama, designed and implemented specialized training to address full-spectrum operations.

First, the school produced several references to provide a basis for the BAE's operations, including Training Circular 1-400 Brigade Aviation Element (BAE) Handbook; a BAE reference library; an Army Knowledge Online (AKO) knowledge collaboration center; and many SME points of contact. The Aviation Warfighting Center also provided mobile training teams (MTTs) to help BAEs, (as well as other AC² fires and maneuver planners) to execute their duties. Based on the complexity of the

- Plan and integrate aviation operations with the ground scheme of maneuver.
- Integrate airspace command and control (AC²) in the brigade combat team (BCT) area of responsibility (AOR).
- Plan and request airspace control measures (ACMs).
- Coordinate and synchronize aviation operations with the combat aviation brigade (CAB) and higher headquarters.
- Coordinate and deconflict unmanned aerial systems (UAS) operations.

Figure 2: The BAE Mission-Essential Task List (METL)

tasks at hand, the MTT addresses critical training tasks to aid BAEs in performing their duties.

The MTT provides immediate help to the BCT staff and the BAE and is the interim training solution until training can be infused into professional military education (PME) at the officer, warrant officer and NCO levels. The MTT provides detailed instruction in the subjects listed in Figure 4 on Page 38.

BAE and Aviation LNO. The CAB and its subordinate battalions continue to have liaison cells embedded in them. These organizations are still vital in the successful execution of aviation missions. The BAE functions don't replace those of the liaison cells. The aviation commander always will be responsible for providing liaison to the supported unit. The BAE even has a liaison from the CAB to help focus its efforts.

Once a relationship is established with a BCT, the aviation unit must develop a workable liaison plan for aviation planning and execution. Even with modularity, brigade commanders and missions may be very different based on the COE. Therefore, the expectations of aviation in the BCT must be agreed upon, so the planning meets the timely needs of the ground commander while retaining flexibility for the aviation TF commander.

The BAE focuses on the tactical scheme of maneuver, taking into consideration the aviation TF's operational tempo (OPTEMPO), crew availability and potential to build combat power. If mission planning is not collaborative, the BCT will not gain the benefits intended with the creation of the BAE.

- Close Combat Attacks
- Interdiction Attacks
- Joint Air Attack Team (JAAT) Operations
- Air Assault Operations
- Reconnaissance and Security Operations
- UAS Operations
- AC²
- Routine Air Mission Requests
- Air Medical Evacuation (MEDEVAC) Operations
- Command and Control UH-60 Operations
- Special Operations Forces (SOF) Aviation Employment

Figure 3: BAE Mission Planning



Soldiers of B Company, 2nd Battalion, 504th Parachute Infantry Regiment (PIR) (B/2-504 PIR), *White Devils*, out of Kandahar Army Airfield, Afghanistan, prepare to move out and conduct searches for suspected Taliban and weapon caches in the Bahgron Valley during Operation Viper on 19 February 2003. B Company was attached to the 1st Brigade, 82nd Airborne Division. (Photo by SPC Preston Cheeks)

Equipment. To take full advantage of the BAE's potential, critical equipment is required. The BAE must be able to link into the AC² network for airspace planning and deconfliction and the air-ground radios for line-of-sight and beyond-line-of-sight communications. It also must have the ability to conduct automated aviation mission planning.

The Tactical Airspace Integration System (TAIS), which is part of the Army Battle Command System (ABCS), allows the BAE to affect AC² operations. Before transformation, TAIS only existed in the air traffic service battalions and companies as well as in some division headquarters and the Stryker BCT's (SBCT's) ADAM cells. TAIS allows the BAE to do the tasks listed in Figure 5.

Currently, the BAE and BCT's ADAM cell share tactical communications

equipment, to include the Single-Channel Ground and Airborne Radio System (SINCGARS), the air and missile defense workstation (AMDWS), air defense systems integrator (ADSI) workstation and TAIS workstation. This conglomeration of systems conveniently was packaged in the TSQ-282 ADAM vehicle. Due to the rapid fielding of the BAE, this equipment sharing was necessary to allow the BAE to operate.

During our operations, we must consider the synergy that is gained by the collocation of elements that clear fires for the scheme of maneuver. In the future, additional systems are being considered for use, including the VRC-100 Automatic Link Establishment (ALE) high-frequency (HF) radio, additional SINCGARS radios, Tactical Satellite (TACSAT) 117F, GRC-240 UHF/VHF radios, and an Iridium satellite telephone.

- Air-Ground Integration
- AC²
- Joint Airspace
- Targeting
- Full Spectrum of Aviation Missions
- Tactical Airspace Integration System (TAIS) Operator, Mission Planning and Communications Systems Instruction

Figure 4: Mobile Training Teams (MTTs) for BAEs

- Synchronize, visualize and deconflict airspace.
- Request, process and display ACMs from the airspace control order (ACO).
- Link to joint airspace management processes at the battlefield coordination detachment (BCD).
- Interface with other Army and joint battle command systems.
- Display air tracks, if appropriate feeds are available.

Figure 5: BAE TAIS Tasks

In time, the BAE's capabilities will increase as equipment becomes available. Aviation mission-planning tools also are necessary for the BAE to plan and deconflict both manned and unmanned aviation operations. To enable the BAE to accomplish these tasks, the Aviation Mission Planning System (AMPS) (part of ABCS) is being given to BAEs to facilitate their communications digitally. The planning products from the aviation TFs as well as subordinate UAS units will be processed and passed to higher AC² authorities via the AMPS for approval and synchronization.

To allow the BAE to move about the battlefield, the BAE will have two High-Mobility Multipurpose Wheeled Vehicles (HMMWVs); currently it has one. The two vehicles will allow elements of the BAE to operate independently for liaison, planning and tactical operations center (TOC) operations.

All of these equipment issues are part of the normal growing pains of rapidly fielded organizations. As doctrine and tactics, techniques and procedures (TTPs) mature, the BAE's equipment needs will be better defined and met to allow the BCT to exploit the BAE's capability fully.

As the Army completes transformation, BAEs will reside in every infantry BCT (IBCT) and heavy BCT (HBCT) in the Army, both active and Reserve Component. The BAEs of the 3rd Infantry Division were the first to deploy for OIF in 2005 and, like others, have since returned to the area of operations (AO). These teams represent the first of many to bring aviation expertise to the BCTs during current operations in Iraq and Afghanistan and have enabled ground commanders' operations. They also have played a critical role in the development and success of the BAE concept and will help to further refine its future on the battlefield.

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